Status of E-906/SeaQuest

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The SeaQuest status

- **(so far) unpolarized fixed-target Drell-Yan experiment**:
  - a 120 GeV proton beam extracted from the MI and
  - a moving target table (liquid H and D, solid state nuclei)
- **significant increase in physics reach:**
  - unique access to sea quarks at high-x
  - What is the structure of the nucleon?
  - What is the structure of nucleonic matter?
- **commissioning run 03/07/2012 – 04/30/2013**
- **waiting for beam ~ end of October 2013**

Beam-line problems: 04/11 – 10/13 (tbc)

- **vacuum problems since April 2011**
- **sleeving of berm pipe in progress:**
  - welded the first six lengths of pipe together

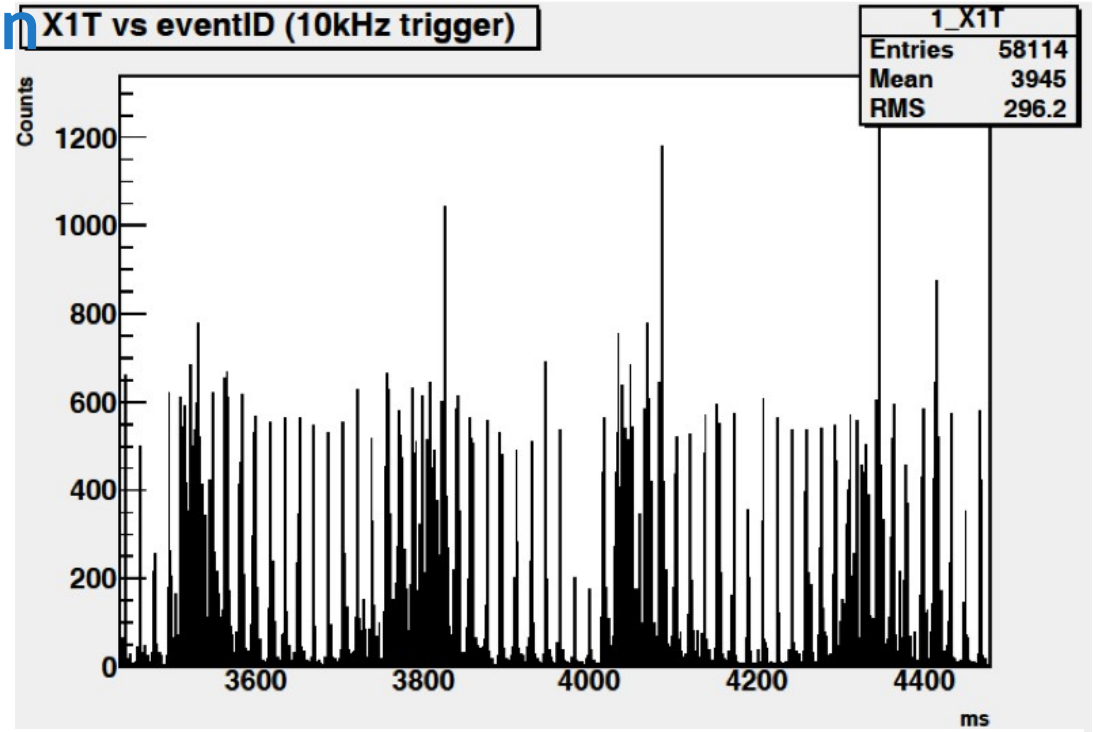
    → no leaks → welds cleaned and pickled
  - welded nosecone to the transition piece, moved to G2
  - scheduled to do the first pull on Thursday, August 1
- **on July 16th: end date changed from end August to end October**
- **as last we heard: the schedule continues to slip and additional manpower is needed**

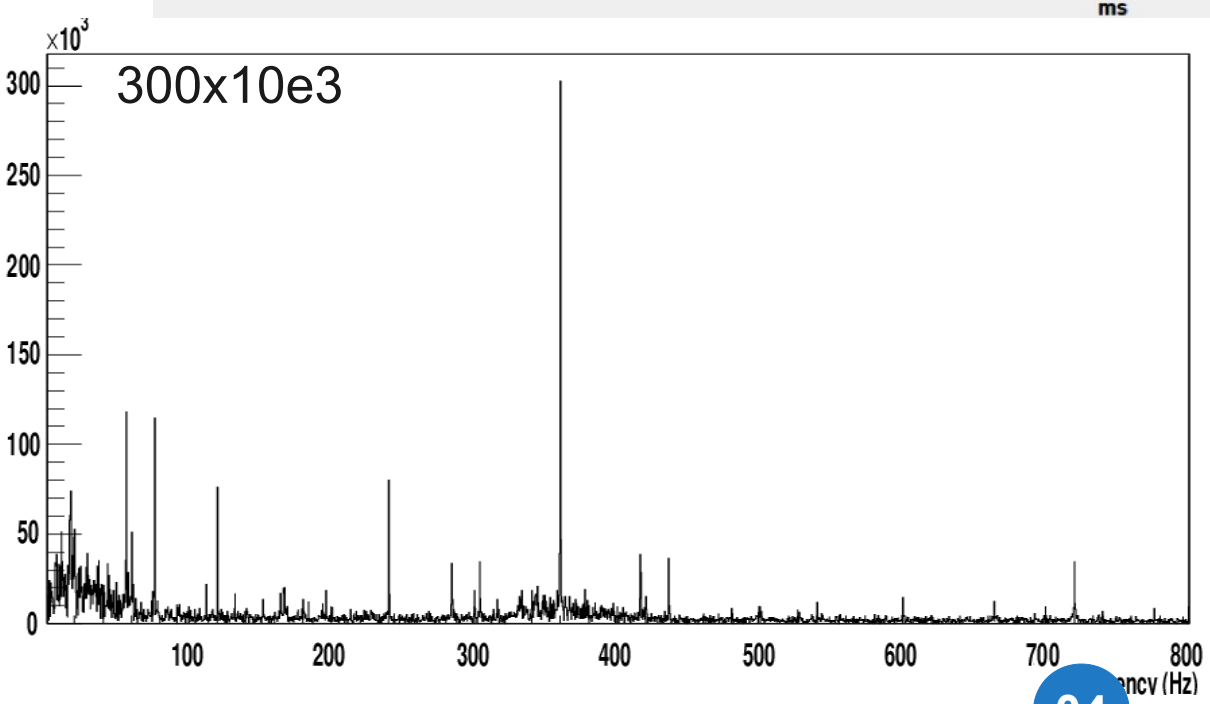
Commissioning of MI extraction

- large variation in instantaneous intensity, duty factor very low.
- periodic structure -- phase locked to AC 60 Hz
- **AD worked on various improvements,** e.g. quad bus filters
- **improved beam diagnostics via SeaQuest beam-line Cerenkov counter**

  → bucket by bucket intensity
- **plan:** test beam diagnostics at MT3

  → analyze beam structure while work on SeaQuest beam line is ongoing





Target Updates

Safety walkthrough (last week):

1) install another flammable gas detector for the pump cart
2) install vent van on pump cart
3) close electrical boxed on the pump carts
4) fill holes in the electrical boxes by the pump carts

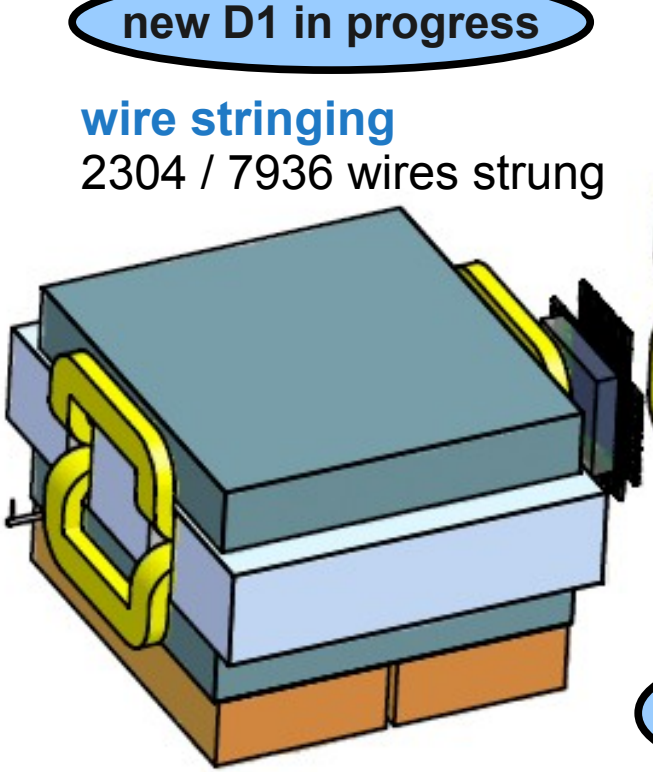
Detector Updates

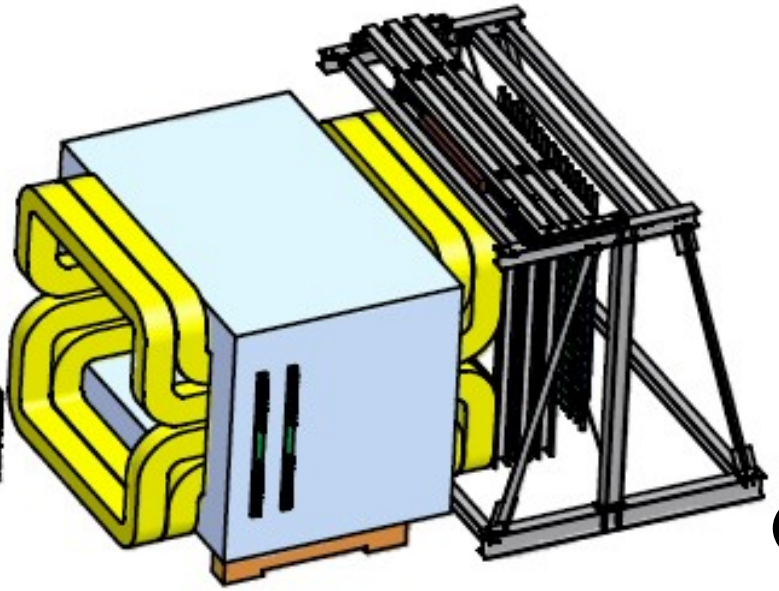
repair of interim D1

repair completed

new D1 in progress

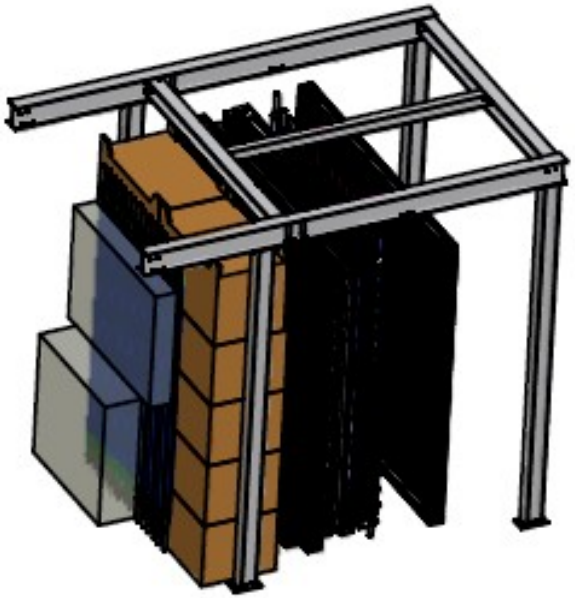
wire stringing
2304 / 7936 wires strung





PMT base update

higher-rate capability for H1/H2
installation complete
→ gain-matching in progress



new D3m wire chamber completed

HV training @ -2.6 kV operating voltage with Ar:CO_2 gas

DAQ: Improved TDC for Run II

TDC bin width	~0.44 ns	**calibrated**
minimum width of signal	4 ns	
maximum number of hits in 64 ns	4	
adjustable time window (detector)	4ns – 2048ns	
maximum number of hits per trigger	32 – 1024	
multiple events per IRQ	2 – 32	**tested**
scalar buffer	8 hits / channel	
intrinsic zero suppression (multi-sampling)		**tested**
multiple hits elimination		**tested**

leading edge or leading / trailing edge detection

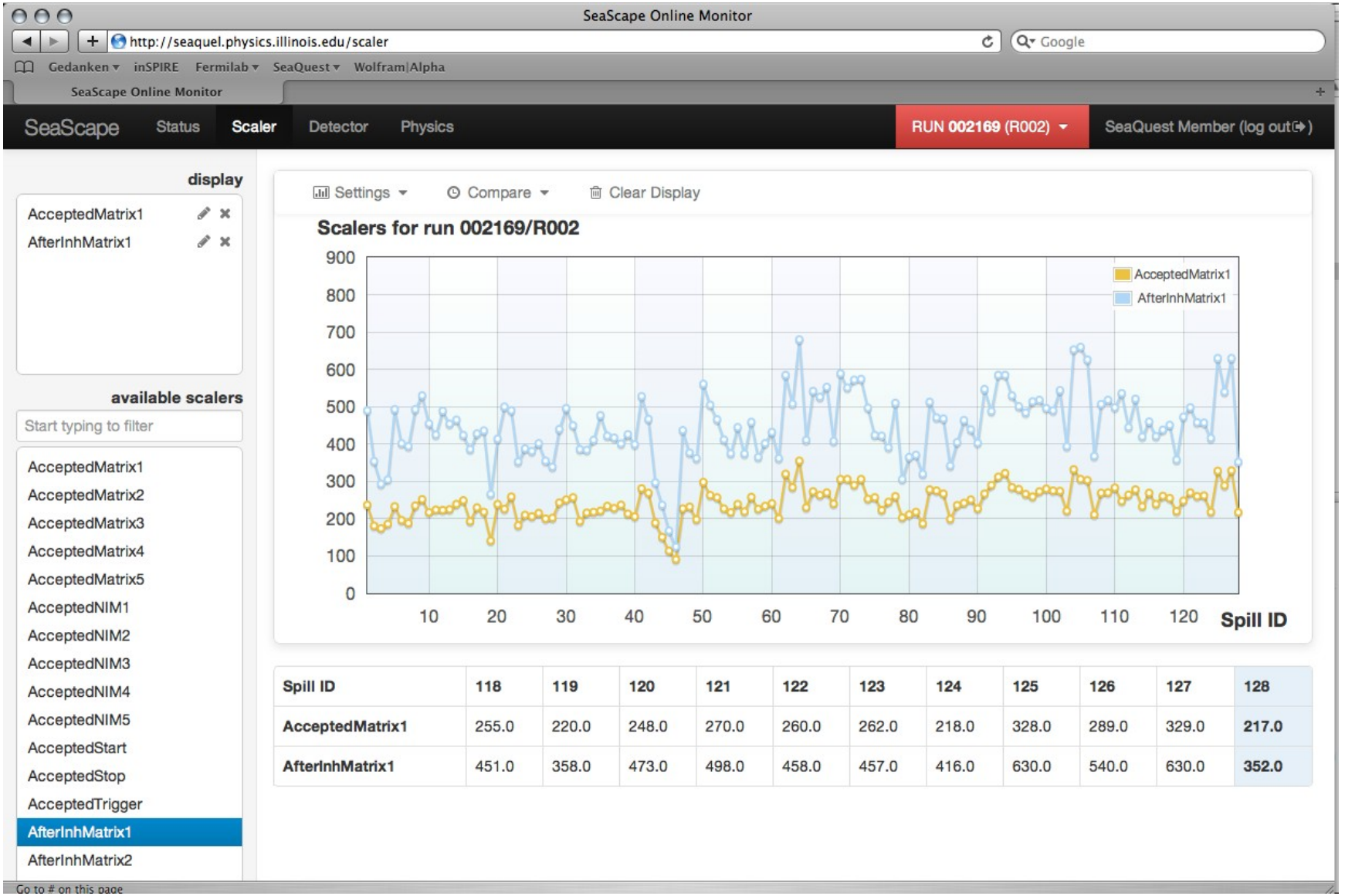
test with hodoscopes and proportional tubes

Run II TDC working

Trigger Updates

- **updates on trigger hodoscopes completed**
- **trigger road generation:**
  - realistic MC sample clearly improved
  - trigger software suite progressing well
- **pulser test proceeds well:**
  - looking for any unwanted behavior from the trigger modules
- **final trigger configuration being installed**

Improved Online Monitoring



Spill ID	118	119	120	121	122	123	124	125	126	127	128
AcceptedMatrix1	255.0	220.0	248.0	270.0	260.0	262.0	218.0	328.0	289.0	329.0	217.0
AfterInhMatrix1	451.0	358.0	473.0	498.0	458.0	457.0	416.0	630.0	540.0	630.0	352.0